SolarInnovate Energy Solutions

Kathmandu Energy Efficient Solar System Power Generation

Overview

The simulation constituted to design a 3-kWp PV system, calculated based on the load profile of the selected study area (Table 3). For this, a PVsyst was used to analyse technical and economic analysis. PVsyst software (Ashok et al., 2020) is a tool that lets its user to analyse different configurations.

Various inputs have been used to operationalise the Solar PV model received from an SPC supplier for a stand-alone PV system and grid-connected PV system.

A Meteonorm 7.3 software is used to obtain the relevant solar radiation data for the selected study area.

Does Kathmandu have a solar power plant?

The weather data analysis demonstrated that the PV power plant is promising in the Kathmandu valley, generating electricity for public consumption. Similarly, the simulation result in PVsyst proved an enormous potential for solar PV systems in Kathmandu. Solar energy deployment has experienced unprecedented growth in recent years.

How much electricity can a 3-kwp PV system generate in Kathmandu?

Our results show that the 3-kWp PV system can generate 100% of electricity consumed by a typical residential household in Kathmandu. The calculated levelised cost of energy for the PV system considered is 0.06 $/kWh, and the corresponding rate of investment is 87%. The payback period is estimated to be 8.6 years.

Why should Nepal invest in solar energy?

For this, India has been aggressively investing in solar PV systems with a target of 100 GW of installed solar capacity by 2022, and likewise, China has a similar target within 2020. This is the biggest inspiration for Nepal. Nepal should follow its footstep to enhance its energy system by adapting the solar PV system to its energy mix.

Can a 3-kilowatt-peak photovoltaic system be installed in Kathmandu?

Provided by the Springer Nature SharedIt content-sharing initiative This study investigates the techno-economic feasibility of installing a 3-kilowatt-peak (kWp) photovoltaic (PV) system in Kathmandu, Nepal. The study also analyses the importance of scaling up the share of solar energy to contribute to the country's overall energy generation mix.

How to promote solar PV in Nepal?

Solar PV comes into account in two major ways one, as cheap, green, and sustainable energy technology and another as diversifying the energy production in the country. The first and most reasonable approach for promoting solar in Nepal is to increase the domestic energy generation.

Will PV system help Nepal achieve 100% electricity by 2023?

According to the energy progress report 2019, 1.3 million people have no access to electricity, and Nepal has targeted to achieve 100% electricity for all by the year 2023 (Nepal Electricity Authority, 2020. Hence the PV system would be the game-changer and help to achieve such targets (see Fig. 1).

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